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13.0 GLOSSARY

- acute toxicity:** Short-term toxicity to organism(s) that have been affected by the properties of a substance, such as contaminated sediment. The acute toxicity of a sediment is generally determined by quantifying the mortality of appropriately sensitive organisms that are put into contact with the sediment, under either field or laboratory conditions, for a specified period.
- adsorb:** The physical or chemical bonding of a gas or liquid (e.g., a contaminant) to a solid (e.g., soil); to adhere to the surface by electrostatic forces.
- adsorption:** The act of adsorbing (see adsorb).
- amphipod:** A small crustacean of the Amphipoda order such as the beach flea.
- anadromous:** Migrating up rivers from the sea to breed in fresh water.
- anoxic:** Absence of oxygen.
- anthropogenic:** Of, relating to, or influenced by the impact of man on nature or natural ecosystems.
- bathypelagic zone:** Ocean depths below 1,000 meters, characterized by complete darkness, low temperature, low oxygen, and great pressure.
- benthos:** The bottom of an aquatic environment.
- bioaccumulation:** The uptake of contaminants into an organism through any route, including respiration, ingestion, or direct contact with contaminated water or sediment.
- bioassay:** The use of living organisms to determine the effect of some substance, factor, or condition.
- bioavailable:** A contaminant existing in a form that can be taken up by living organisms.
- brackish:** Containing some salt.
- breach:** A gap or rift in a solid structure such as a levee; to make a hole or gap in.
- BTEX:** A mixture of benzene, toluene, ethyl-benzene, and xylene
- cell:** With respect to upland/wetland reuse of dredged material, such as rehandling facilities or wetland restoration, internally contained dredged material storage areas.
- cetacean:** An order of aquatic, mostly marine mammals that includes whales, dolphins, and porpoises.
- chronic toxicity:** Biological tests that use sublethal effects such as abnormal development, growth, and reproduction, rather than solely lethality, as endpoints. These tests involve all, or at least an important, sensitive portion of an organism's life history. A sublethal endpoint may result either from short-term or long-term (chronic) exposures.
- copepod:** A member of the small marine and freshwater crustacean Copepoda order.
- Cretaceous:** A period of geologic time and sedimentary rock formations of the third and last period of the Mesozoic era when flowering plants developed and dinosaurs became extinct.
- DDD:** dichloro-diphenyldichloroethane (a breakdown product of DDT)
- DDE:** dichloro-diphenyldichloroethylene (a breakdown product of DDT)
- DDT:** dichloro-diphenyltrichloroethane (an insecticide)
- decibel:** A unit of sound measurement.
- decibel, A-weighted:** Sound frequencies normally heard by the human ear.
- de minimis thresholds:** The level of pollutant emissions used to determine the need for a Conformity Determination according to Section 176(c) of the Clean Air Act (as codified in 40 CFR 51 Subpart W and 40 CFR 93 Subpart B). A Conformity Determination is required when the total of direct and indirect emissions in a nonattainment or maintenance area caused by a federal action would equal or exceed the de minimis thresholds.

- designated waste: A non-hazardous waste containing compounds that, under ambient environmental conditions, could be released and cause degradation of waters of the state. These wastes can only be discharged at Class I or Class II waste management facilities.
- desiccation: The process of drying out thoroughly.
- desorption: The process of removing an absorbed substance.
- ecotone: Ecological community of mixed vegetation formed by the overlapping of adjoining communities.
- effluent: Outflow or discharge of waste.
- El Niño: An oceanic condition when weakened upwelling causes warmer than usual, nutrient-poor water to predominate near the ocean surface; this can result in a dramatic decline in ocean food production, with reduced survival and reproductive success of marine organisms.
- elutriate: To purify, separate, or remove by washing.
- emergent plants: Newly created vegetation.
- entrapment zone: A region downstream of the null zone (see below) where gravitational circulation concentrates suspended materials such as nutrients, plankton, and very fine suspended sediments. The entrapment zone concentrates phytoplankton, zooplankton, and nutrients, providing a rich habitat for the rearing of juvenile fish.
- epibenthic: In aquatic environments, animals living just above the sea or lake bottoms.
- epifauna: In aquatic environments, animals living on top of sediments or other surfaces (cf infauna).
- epipelagic zone: The upper area of the open ocean (the surface to 200 meters deep).
- exotic species: Invasive or non-native species to the area or habitat.
- gravimetric: Of or pertaining to measurement by weight.
- Green Book: *The Ocean Disposal Testing Manual* (USEPA and USACE 1991)
- halophyte: A plant that grows in saline (exposed to brackish water) soil.
- hazardous waste: Material that is either a state or federal hazardous waste as described in the California Code of Regulations or the *Federal Register*, respectively. Such material is suitable only for disposal at a Class I landfill.
- holoplankton: Zooplankton that remain planktonic throughout their life.
- HPAH: high molecular weight polynuclear aromatic hydrocarbons
- hydraulic: Involving, moved, or operated by a fluid, especially water, under pressure.
- ichthyoplankton: The larval stages of fish.
- in-board: The inside edge of a levee; the side farthest from the water.
- inert waste: A waste that exhibits no chemically reactive properties.
- infauna: In aquatic environments, animals living within sediments on the bottom.
- inversion: A condition where a layer of warm air or water is trapped under a layer of cool air or water so that it cannot rise.
- isobath: Lines or contours representing equal depth.
- LC₅₀: lethal concentration for 50 percent of test species.
- LPAH: low molecular weight polynuclear aromatic hydrocarbons
- maintenance dredging: Dredging recently deposited sediments in navigation channels.
- “major dredgers”: In this document, those dredgers that typically initiate dredging projects of 13 feet or more (see “small dredgers”).
- mean higher high water: The average height of the higher of the daily high tides.
- mean lower low water: The average height of the lower of the daily low tides.

- meroplankton: The larval stages of benthic invertebrates.
- Merritt Sand: An ancient, fine-grained sand deposit in San Francisco Bay that occurs relatively close to the sediment surface.
- mesopelagic zone: Ocean depths between 200 and 1,000 meters.
- middens: Organic soil associated with archaeological sites where food refuse, particularly shellfish, degrades over time, creating a dark brown, silty consistency.
- “mudlock”: A situation in the Bay Area in the 1980s when several large, important proposed dredging projects threatened to tax the region’s existing disposal options beyond capacity, and when repeated attempts to find other options failed due to various legal, environmental, and economic concerns.
- neo-tropical: The biogeographic region that includes Mexico, Central and South America, and the West Indies.
- nephelometer: A device used to measure the size and concentration of particles in a liquid using transmitted light.
- new work construction: Dredging sediments in their natural condition.
- NUAD material: Dredged material not suitable for unconfined aquatic disposal. There are three classes of NUAD material designating increasing levels of contamination.
- null zone: The most landward zone of gravitational circulation, where bottom ebb and flood currents are nearly equal.
- old Bay mud: The older, marine clay-silt sediments in San Francisco Bay.
- organotin: An organic (i.e., carbon-containing) compound that includes tin as a constituent. The non-aromatic varieties are known to be highly toxic.
- out-board: The side of a levee closest to the water.
- overstory: The top layer (canopy) of the vegetation cover (or foliage).
- oxidation: Combination of a substance with oxygen.
- oxygen minimum zone: The area in the ocean’s mesopelagic zone where oxygen concentrations are the lowest in the entire water column.
- PAHs: polynuclear aromatic hydrocarbons
- PCBs: polychlorinated biphenyls
- palustrine: A type of wetland that supports persistent vegetation and is inundated or saturated by waters of non-marine origin. Examples include marshes, swamps, bogs, etc.
- pelagic: Living in the open ocean or seas rather than adjacent to land or inland waters.
- pH: The measure of acidity or alkalinity of a solution, A pH of 7 is neutral, over 7 is alkaline, and a pH below 7 is acidic.
- phi size: a measure of soil/sediment grain size
- phytoplankton: Single-celled algae.
- pinniped: A suborder of aquatic carnivorous mammals with all four limbs modified into flippers, such as sea lions, seals, and walruses.
- piscivorous: Fish-eating.
- Pleistocene: A late Cenozoic geologic epoch characterized by fluctuating, generally cool climates — often accompanied by glaciation — and distinctive animal species, dating from 3 million years ago until approximately 11,000 years ago.
- polychaete: Member of marine worms of the Polychaeta class, with paired, flattened, bristle-tipped organs for locomotion.
- pycnocline: Rapid change in water density with changing depth.
- redox potential: Potential for undergoing the process of oxidation and reduction.
- refugia: A small, isolated area that has escaped extreme changes affecting a surrounding area (e.g., glaciation).
- revetment: A retaining structure made of earth.

riprap: An assemblage of broken stones or concrete, etc., placed against a revetment or levee to prevent or reduce erosion.

rookery: A breeding ground for certain types of birds and mammals, such as seals.

rotifer: A member of the phylum Rotifera, including minute multicellular aquatic organisms with a wheel-like ring of cilia at their anterior end.

sink: A depression or hole in which materials such as pollutants are concentrated.

“small dredgers”: Relatively small dredging projects within channels, harbors, and marinas not exceeding a depth of 12 feet or a volume of 50,000 cy per year on average.

source: Origin or location.

SUAD material: Dredged material that is considered suitable for unconfined aquatic disposal

sublethal: No directly causing death; producing less obvious effects on behavior, biochemical and/or physiological function, or the histology of organisms.

subsidence: The process of sediment settling, usually at a lower level.

Tertiary: Belonging to or dating from the first period of the Cenozoic era, extending from the Cretaceous period of the Mesozoic era to the Quaternary period of the Cenozoic era, when modern flora and apes and other large mammals appeared.

tiered approach: A structured, hierarchical procedure for determining data needs relative to decisionmaking, which involves a series of tiers or levels of intensity of investigation. Typically, tiered testing involves decreasing uncertainty and increased available information with increasing tiers. This approach is intended to ensure the maintenance and protection of environmental quality, as well as the optimal use of resources.

toe (of a levee): The bottom portion of a levee.

toxicity test: A *bioassay* that measures an effect (e.g., acute toxicity, sublethal/chronic toxicity). Not a *bioaccumulation test* (see definition of bioassay).

understory: Vegetation found under the canopy of arboreal (tree-covered) habitats.

unsuitable sediment: Sediments that, due to contamination, cannot be disposed at unconfined aquatic disposal sites.

upwelling: The upward movement of nutrient-rich water from the continental slope onto the continental shelf.

vascular plant: Plants of the division Tracheophyta including ferns and seed-bearing plants with a system of specialized conductive or supporting tissue.

water quality certification: A state certification that the proposed discharge of dredged material will comply with the applicable provisions of Sections 301, 303, 306, and 307 of the Clean Water Act.

water quality standard: A law or regulation that consists of the beneficial designated use or uses of a water body, the numeric and narrative water quality criteria that are necessary to protect the use or uses of that particular water body, and an anti-degradation statement.

winnow: To get rid of something unwanted, or to separate, sift, or sort (something) as if by winnowing.

work category: In this document, there are three major categories of dredging work (“work categories”): maintenance dredging, new work dredging (i.e., deepening projects), and small dredging projects.

young Bay mud: Surface deposits of Bay mud in San Francisco Bay.

14.0 ACRONYMS AND ABBREVIATIONS

ABAG	Association of Bay Area Governments	ESA	Endangered Species Act
AET	Apparent Effects Threshold	FDA	U.S. Food and Drug Administration
ARB	California Air Resources Board	FEMA	Federal Emergency Management Agency
AVS	acid volatile sulfides	GBA	Gahagan & Bryant Associates
BAAQMD	Bay Area Air Quality Management District	GNF	general navigation features
BACT	Best Available Control Technology	GOFNMS	Gulf of the Farallones National Marine Sanctuary
BARCT	Best Available Retrofit Control Technology	GRP	gross regional product
BCDC	San Francisco Bay Conservation and Development Commission	I&M	(vehicle) inspection and maintenance
BMP	Best Management Practices	IEP	Interagency Ecological Program
BPTCP	Bay Protection and Toxic Cleanup Program	ITM	Inland Testing Manual
CAA	federal Clean Air Act	IWMB	state Integrated Waste Management Board
CAAQS	California Ambient Air Quality Standards	kg	kilogram
CAC	California Administrative Code	l	liter
CAD	confined aquatic disposal	LDC	London Dumping Convention
CAP	Clean Air Plan	LOS	level of service (related to level of traffic congestion)
CCAA	California Clean Air Act	m ³	cubic meter
CCMP	Comprehensive Conservation and Management Plan	maf	million acre-feet
CCR	California Code of Regulations	MARAD	Maritime Administration
CDF	confined disposal facility	MCL	maximum contaminant level
CDFG	California Department of Fish and Game	mcy	million cubic yards
CEQA	California Environmental Quality Act	mg	milligram
cfs	cubic feet per second	mg/l	milligrams per liter
cm	centimeter	MHHW	mean higher high water
CMDA	Chemical Munitions Dumping Area	nmi	nautical mile
CO	carbon monoxide	MOA	Memorandum of Agreement
COE	U.S. Army Corps of Engineers	MOU	Memorandum of Understanding
CVP	Central Valley Project	MPRSA	Marine Protection, Research, and Sanctuaries Act
CVRWQCB	Central Valley Regional Water Quality Control Board	MTC	Metropolitan Transportation Commission
CWA	federal Clean Water Act	NAAQS	National Ambient Air Quality Standards
cy	cubic yards	NAS	Naval Station
CZM	coastal zone management	NED	National Economic Development
CZMA	Coastal Zone Management Act	NEPA	National Environmental Policy Act
CZMP	Coastal Zone Management Plan	NBI	North Bay Initiative
dB	decibel	NBWWP	North Bay Wetlands Protection Program
dba	A-weighted decibel	ng/l	nanograms per liter
DMMO	Dredged Material Management Office	NGVD	National Geodetic Vertical Datum
DO	dissolved oxygen	NMFS	National Marine Fisheries Service
DTSC	California Department of Toxic Substances Control	NO ₂	nitrogen dioxide
DWR	California Department of Water Resources	NO _x	nitrogen oxides
EIR	Environmental Impact Report (per CEQA)	NPDES	National Pollutant Discharge Elimination System
EIS	Environmental Impact Statement (per NEPA)	NSC	Naval Supply Center
EPA	U.S. Environmental Protection Agency	NUAD	not suitable for unconfined aquatic disposal
		O ₃	ozone
		O&M	operation and maintenance
		ODMDS	ocean dredged material disposal site
		OMZ	oxygen minimum zone

PM ₁₀	particulate matter less than 10 microns in diameter	SO ₂	sulfur dioxide
PN	Public Notice	SQC	sediment quality criteria
ppb	parts per billion	State Board	State Water Resources Control Board (SWRCB)
PPD	Pollutant Policy Document	STLC	soluble threshold limiting concentration
ppm	parts per million	SUAD	suitable for unconfined aquatic disposal
ppq	parts per quadrillion	SVAB	Sacramento Valley Air Basin
ppt	parts per thousand	SWP	State Water Project
pptr	parts per trillion	SWRCB	State Water Resources Control Board
PSDDA	Puget Sound Dredged Disposal Analysis	T&E	threatened and endangered (species)
RACT	Reasonably Available Control Technology	TCLP	Threshold Concentration Leachate Procedure
RBDD	Red Bluff Diversion Dam	TDS	total dissolved solids
Regional Board	Regional Water Quality Control Board (RWQCB)	THM	trihalomethane
RIM	Regional Implementation Manual	TIE	toxicity identification evaluations
RMP	Regional Monitoring Program (of the RWQCB)	TOG	total organic gases
ROG	reactive organic gases	TRPH	total recoverable petroleum hydrocarbons
ROI	region of influence	T-S	temperature-salinity
RWQCB	Regional Water Quality Control Board	TSS	total suspended solids
SB	Senate Bill	μg	microgram
SCS	Soil Conservation Service	μg/l	micrograms per liter
SFBAAB	San Francisco Bay Area Air Basin	USACE	U.S. Army Corps of Engineers
SFBRWQCB	San Francisco Bay Regional Water Quality Control Board	USCG	U.S. Coast Guard
SF-DODS	San Francisco Deep Ocean Disposal Site	USEPA	U.S. Environmental Protection Agency
SFEI	San Francisco Estuary Institute	USFWS	U.S. Fish and Wildlife Service
SFEP	San Francisco Estuary Project	UWR	upland/wetland reuse
SHPO	State Historic Preservation Officer	VOC	volatile organic compounds
SIP	State Implementation Plan	VTs	(USCG's) Vessel Traffic System
SJVAB	San Joaquin Valley Air Basin	WDR	Waste Discharge Requirements
SJVUAPCD	San Joaquin Valley Unified Air Pollution Control District	WES	U.S. Army Corps of Engineers Waterways Experiment Station
SLC	State Lands Commission	WET	Waste Extraction Test
SMAQMD	Sacramento Metropolitan Air Quality Management District	WRDA	Water Resources Development Act

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16.0 LIST OF MEASUREMENTS

cm	centimeters
cm/sec	centimeters per second
cy	cubic yards
°C	degrees Celsius
°F	degrees Fahrenheit
ft	feet
km ²	square kilometers
m	meters
m ²	square meters
mcy	million cubic yards
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
ng/L	nanograms per liter
ppb	parts per billion
ppm	parts per million
ppt	parts per thousand
μg - Atoms/L	micrograms- atoms per liter
μg/L	micrograms per liter
μM/L	micromoles per liter

UNIT CONVERSIONS

<i>Multiply</i>	<i>By</i>	<i>To Obtain</i>
milligrams per liter	1	parts per million (fluid)
milligrams per kilogram	1	parts per million (soils, sediments)
micrograms per liter	1	parts per billion (fluid)
nanograms per liter	1	parts per trillion (fluid)
feet	0.3048	meters
miles (nautical)	1.853	kilometers
miles (statute)	1.609	kilometers
inches	2.540	centimeters
cubic yards	0.7646	cubic meters
miles per hour	44.70	centimeters per second
square feet	0.09290	square meters
square miles (nautical)	3.434	square kilometers
μM/L	molecular weight	micrograms per liter
μg - Atoms/L	1/atomic weight	micrograms per liter

MULTIPLES AND SUBMULTIPLES

<i>Prefix</i>	<i>Symbol</i>	<i>Equivalent</i>	<i>Factor</i>
nano-	n	billionth part	$\times 10^{-9}$
micro-	μ	millionth part	$\times 10^{-6}$
milli-	m	thousandth part	$\times 10^{-3}$
centi-	c	hundredth part	$\times 10^{-2}$
kilo-	k	thousandfold	$\times 10^3$

Appendix A

LTMS Participants — Past and Present

APPENDIX A

LTMS PARTICIPANTS — PAST AND PRESENT

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*Indicates that members served on the committee in the past but are no longer active members

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(The listing of more than one name per agency or organization indicates that more than one person has held the position since 1990)

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(The listing of more than one name per agency or organization indicates that more than one person has held the position since 1990)

Abbreviations for Designations Below

- * Active Workgroup since March 1995
- + Inactive Workgroup
- Work Completed

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Appendix H

Federal and State Water Quality Criteria and Objectives